May 30, 1997

Dear Friends:

This Keyletter will be a large one! I normally send them to press when I have enough to fill up ten pages which keeps me within the one ounce first class postage rate. I am leaving next week on a three week key foraging trip/VHF expedition, so I wanted to get this issue out before then. As luck would have it, a lot of stuff came rolling in, so I checked the postage fund and decided to run a larger edition.

Thanks for all of the kind comments about the Vibroplex catalog in the last issue. Several asked if I could always send the Keyletters in envelopes. Unfortunately, if I send them in envelopes I have to reduce the number of pages to stay within the postage rates. It is a lot cheaper to replace an occasional mangled copy than it is to buy envelopes and pay extra postage.

As always, thanks to those that have sent in donations to help defray costs.

We have all sweated bullets taking a vintage key apart, hoping that the screws will give before they twist off or tear up the slot. A nice finishing touch when working on a key is to lightly lubricate the threads before you put the key back together. I use a small oiler for this purpose. If you have not seen one, it looks like a transparent marking pen and has a needle-like applicator. The oil is very light, and you can apply a drop in just the right place with it. A tiny drop will ensure that it will go together smoothly and that you [or a future owner] can get it apart when the time comes. Using a bigger applicator will result in oil oozing out of the threads and an unsightly oil spot on the finish.

Roger Reinke wrote to point out that his article in the 2/94 OTB [Patina Vs. Polish, Part II] provided sources for instrument lacquer. This is an excellent article and is well worth re-reading.

Vibroplex Upright survey. The following is a listing of Vibroplex Upright serial numbers. Please note that I do not have the number for the key (keys?) at the AWA museum. If anyone pays them a visit I would appreciate a note with the serial number.

Randy Cole	58672
Bill Holley	60603
Dave Pennes	60609
Lynn Burlingame	60784
John Elwood	60807
Russ Kleinman	60818
Vince Thompson	62888
Tom Perera	63440
Murray Willer	63653

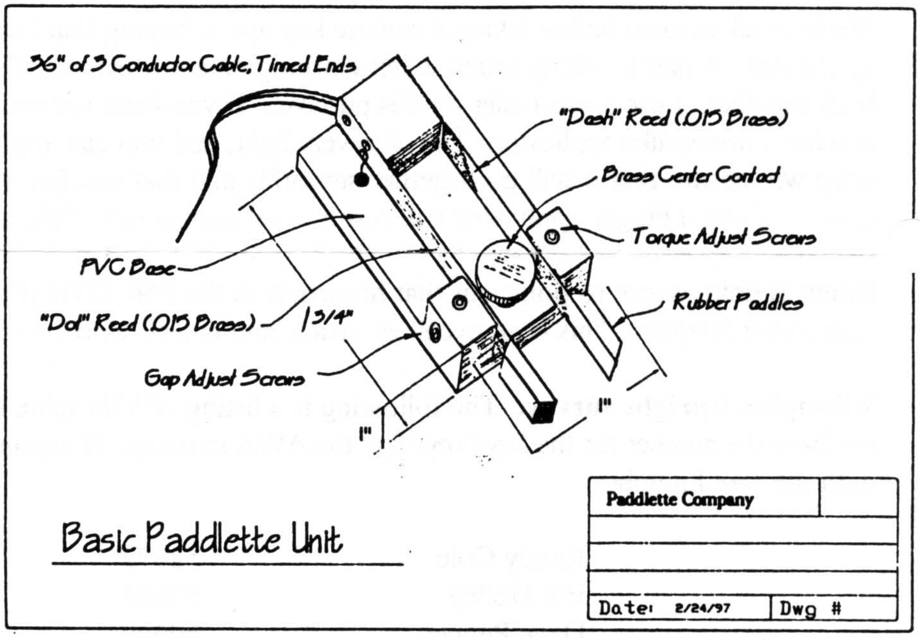
N2DAN, SK Steve Nurkiewicz, maker of the Mercury paddle, passed away from liver cancer on May 20, 1997.

Bob Finch has a new call - W9YA. His e mail address is "w9ya@amsat.org". If any of you have changed your calls due to the recent open season on vanity calls please drop me a note. I would appreciate it if you would also keep me up to date on your email addresses.

Paddlette: A new set of keyer paddles made their commercial debut at the Mike and Key Club swap meet in Puyallup, Washington in March, 1997. The Padlette is manufactured by Bob Hammond, KI7VY, under the name of the Paddlette Co. in Edmonds, Washington.

The Padlette is a miniature iambic paddle with only two moving parts. It is particularly adaptable to field use because it has an adhesive backed magnetic base that can be attached to almost anything. Two magnetic strips are included with the Padlette so it can be used at a second location. Bob also produces a knee mount for mobile use. The knee mount consists of a 2 1/2" wide piece of powder coated aluminum formed like a shallow inverted "U". It rests on the leg just above the knee and the key is held firmly to the horizontal section by a magnetic plate included with the mount. An adjustable, 1" wide, elasticized belt is permanently attached to one "wing", wraps around the leg, and secures to the other wing with Velcro. With the key mounted, the total weight is only 2.7 ounces. Although light in weight it is both sturdy and comfortable.

The design of the key is very simple, so there should be nothing to go wrong. The footprint is only 1" X 1 3/4", and it weighs less than two ounces. The base is a single piece machined out of dark type 1 PVC and the electrical parts are solid brass. The paddles are flexible metal strips that contact a center post, and the gap is adjustable using 56 pitch screws. The fineness of the adjustment screw allows for very precise adjustment. The design of the set screw for the adjustment is interesting - an Allen screw bears against a neoprene slug that bears against a ball bearing that rides on the adjustment screw. This serves as both an adjustment screw lock and "drag", making the adjustments very smooth and precise.



The "feel" of this key is surprisingly delicate. I quickly got used to it [have you ever used a set of paddles that you just can't "learn"?] and find it to be as good as any of the numerous sets of paddles in my collection. This seems strange when you consider the incredible lengths that most paddle manufacturers have gone to in their efforts to make a paddle with a sensitive and light touch. I suspect that Bob spent a lot of time working on the exact dimensions of the Padlette to make it this sensitive.

The Padlette comes well packed in a styrofoam box and includes connecting cables and an Allen wrench for adjustments. You can order a Padlette from:

The Padlette Co.
PO Box 6036
Edmonds, WA 98026. (425)743-1429

The cost is $38.50 including postage and handling. The knee mount costs is $9.95, including postage and handling. Payment by check or money order, please.

Bob is 76 years old and is retired. He was the "second" employee of the Fluke Company. He started working with John Fluke in 1950. They knew each other while working with General Electric in 1936. The Fluke company was started in 1948 in Springdale, Connecticut, and moved to the west coast in 1953. Hammond retired as principal engineer in 1984. He started working with paddles in 1995 and eventually came up with the Paddlette design. His machine work is done by Gene McCain, also a retired Fluke employee. Bob is working on a new design for a smaller version of the Paddlette - I'll keep you posted.

N7CFO SK? Not yet, but I am not getting any younger. I have recently had some disturbing conversations with some of the guys about the disposition of our collections. I had never really thought about it much, but vaguely planned to donate the collection to a museum at some time in the future. When I visited Neal McEwen last December he told me about lending some valuable keys to a museum with a very clear understanding about how they would be displayed and that he would retain ownership. A few years later he decided to retrieve them, and spent a full evening locating them in the museum's junk room! Neal also told me that many museums accept donations but later de-accession them and sell them for revenue! The sad fact is that we are all holding substantial assets in a form that is valuable only to other collectors. Our families are not equipped to effectively dispose of them, so what should we do? Your comments would be welcome. My wife is convinced that I plan to have them buried with me, but I am afraid that other collectors would found out - constant re-burials could get expensive....

AMERICAN TELEGRAPHY. I mentioned Lindsay Publications in the last Keyletter. They have reprinted William Maver Jr.'s book *American Telegraphy*. The originals are difficult to find, and if you are fortunate enough to come across one you can expect to pay a major amount of money for it. The reprint is hardcover and is worth the price. I can't locate the receipt for my copy, but it cost about $40. This is a must for any serious library. It covers early telegraphy in excruciating detail, and the illustrations alone are worth the price of the book.

Cedar Rapids Bugs. I have been asking Doug Seneker for several years to put together a piece on the "Cedar Rapids" bugs made by the Electric Specialties Manufacturing Company in Cedar Rapids, Iowa. It has paid off since Doug sent me the following. Doug does not claim to be an expert on CR keys, but since he bought out the parts inventory of the company from Jim Hess in 1994 he is the closest thing that we have. Hess bought out the inventory from the Wilson family in the late 1950's. The last Electric Specialties CR bug was advertised in 1957. I am sure that this article will send a lot of people scurrying for their CR bugs to find out exactly which models they have. Please note that Doug has made a lot of informed guesses here. If you have information or an opinion to the contrary please provide me with reference material if you can. If you have a variation on the models listed below, please send a photo and I will pass it along to Doug. Doug also has a limited selection of spare parts available. Write him at 505 East Center, Mt. Vernon, MO 65712 and he may be able to help you out.

Doug Seneker: *Let me first say that CR bugs are not as easily identified as classic models like, for example, Vibroplex. In spite of many little variations which seem to appear, vanish, them reappear in some cases, I am so far able to identify the following:*

1. *Old model "Telegraph Speed Key".*
2. *Old model "Radio Speed Key".*
3. *New Model "Telegraph Speed Key."*
4. *New model "Radio Speed Key."*
5. *N.0.S. telegraph bug (New, old stock)*
6. *"Ham Key" paddle. (No connection with Kam-Key Co. of St., Louis)*

I am not able to firm these designations up yet, having derived these from only 11 keys and company advertising material. I am soliciting any information on Cedar Rapids keys that anyone might have. I have observed the following traits which seem to appear regularly on the various models:

Model 1 - Old model:

- *Cast base, four large rubber feet, approx 3/4".*
- *Straight 3" circuit closer lever on right side.*
- *Paddle with rounded or beveled corners.*
- *Knob has recessed screw, paddle has recessed nut.*
- *Cast brass damper frame, painted black.*
- *Circuit closer knob is conventional telegraph style.*
- *Rubber damper cushion invariably cracked or missing from being stretched over the damper wheel.*
- *Frame is cast brass, painted wrinkle black.*
- *Damper frame cast brass, painted black.*

Model 2 -New Model:

- *Cast iron base, wrinkle black, or grey.*
- *Frame may be case brass or cast aluminum.*
- *Brass frames typically painted wrinkle black.*
- *Aluminum frames may be painted "platinum gray".*
- *The base had a platform for mounting a 5th, large foot which raises the two feet at the damper end up off the operating desk. Usually this foot is missing. When sold they had a manilla tag attached to the foot that stated it "can be removed if 3-point mounting is not wanted".*
- *1/2" suction cup feet on each corner.*
- *Circuit closer has a right angle and mounts under paddle.*
- *Circuit closer knob is **usually** cylindrical and grooved.*
- *May have red or black damper cushion and/or circuit closer knob.*
- *Damper frame usually stamped steel, nickel plated.*

I am reasonably sure that the gray model 2s were made after the black ones. Later bugs had a wedge shaped paddle with sharp corners, and a knob with a recessed nut held to the paddle with a flat-head screw. This later bug was available with a pendulum extension, a knurled cylinder which slipped over the far end of the pendulum an showed the rate of dots greatly.

*The **"Radio Speed Key"** is merely one of the above with the circuit closer missing. This key was also sold in kit form, making it unique in the industry.*

N.O.S. bugs, made be either Jim Hess of myself, have 3/16" flat steel bases and the later style circuit closers. The damper frame may be either stamped, nickel plated or cast and painted. They may or may not bear a decal sticker. The supply of bases is now exhausted and I am experimenting with others.

"Ham-Key" paddles employ some old parts, some new parts, and are on 3/16" bases. They are somewhat similar to the Vibro-Keyer, but have assembled frames and are not as nicely finished. Bases are painted, usually tan. Hess (and later Seneker) made up a few of the paddles in 1992.

There are many small variations which may or may not be typical of certain models. These include types of screws, color of fiber washers, dimensions of cross-hatched screw heads, and lock nuts, color of wiring beneath, etc. Almost without exception, all hardware is nickel, but I do have a few chrome parts in stock, indicating that some may have been used on a few bugs. I also have about seven sizes of feet, so I wouldn't be surprised to find variations.

I downloaded the following from Neal McEwen's web page and it is reprinted with his permission. If you are up on the web you should take a look at the complete page. Neal has links to several other telegraph related pages that are of interest, so his page is a good starting point. You could easily spend a full day looking at the excellent photographs presented by Randy Cole, Tom Perera, Pete Malvasi, the Vibroplex Company, Derek Cohn, and Greg Raven on their respective pages. His URL is "http://fohnix.metronet.com/~nmcewen/ref.html".

Neal posts updated versions of my Keyletter cumulative index, so you can download it if you wish. If you are not up on the Internet and want a current index send me a dollar and I will mail one to you.

SOS. *There is much mystery and misinformation surrounding the origin and use of maritime distress calls. Most of the general populace believes that "SOS" signifies "Save Our Ship." Casual students of radio history are aware that the use of "SOS" was preceded by "CQD." Why were these signals adopted? When were they used? Why did one replace the other? What is one likely to find by digging a little deeper?*

The practical use of wireless telegraphy was made possible by Guglielmo Marconi in the closing years of the 19th century. Until then, ships at sea out of visual range were very much isolated from shore and other ships. A ship could vanish from the high seas, and no one would know until that vessel failed to make a port connection. Marconi, seeing that wireless would not compete with wire telegraphy for land based communication, concentrated his efforts on ship to shore communications. Ships equipped with wireless were no longer isolated.

The first use of wireless in communicating the need for assistance came in March of 1899. The East Goodwin Lightship, marking the southeastern English coast, was rammed in a fog in the early morning hours by the SS R. F. Matthews. A distress call was transmitted to a shore station at South Foreland and help was dispatched.

By 1904 there were many trans-Atlantic British ships equipped with wireless. The wireless operators came from the ranks of railroad and postal telegraphers. In England a general call on the landline wire was a "CQ." "CQ" preceded time signals and special notices. "CQ" was generally adopted by telegraph and cable stations all over *the world. By using "CQ," each station receives a message from a single transmission and an economy of time ana labor was realized. Naturally, "CQ," went with the operators to sea and was likewise used for a general call. This sign for "all stations" was adopted soon after wireless came into being by both ships and shore stations.*

At the first international congress of wireless telegraphy in 1903, the Italians recommended the use of "SSSDDD" to be used to signal an emergency. Its use would signal all other stations to stop sending and leave the channel open for emergency traffic. Though discussed, it was not adopted. Deciding a distress signal was put on the agenda for the next meeting in 1906.

In 1904, the Marconi company filled the gap by suggesting the use of "CQD" for a distress signal. Altho generally accepted to mean, "Come Quick Danger," that is not the case. It is a general call, "CQ," followed by "D," meaning distress. A strict interpretation would be "All stations, Distress."

At the second Berlin Radiotelegraphic Conference 1906, the subject of a danger signal was again addressed. The Germans had used "SOE" as a general inquiry call and suggested its adoption as a distress call internationally. Considerable discussion ensued and there was objection because the final letter was a single dot, hard to copy in adverse conditions. The letter "S" was substituted; the thinking was that three dots, three dashes and three dots could not be misinterpreted. It was to be sent together as one string. (The American distress signal "NC" for "Call for help without delay" was not adopted, although it remains as the international flag symbol for distress to this day.)

The Marconi Yearbook of Wireless Telegraphy and Telephony, 1918 states, "This signal [SOS] was adopted simpl on account of its easy radiation and its unmistakable character. There is no special signification in the letter themselves, and it is entirely incorrect to put full stops between them [the letters]." All the popular interpretations of "SOS," "Save or Ship," "Save Our Souls," or "Send Out Succour" are simply not valid. Stations hearing this distress call were to immediately cease handling traffic until the emergency was over and were likewise bound to answer the distress signal.

Although the use of "SOS" was officially ratified in 1908, the use of "CQD" lingered for several more years, especially in British service where it originated. It is well documented in personal accounts of Harold Bride, second Radio Officer, and in the logs of the SS Carpathia, that the Titanic first used "CQD" to call for help. When Captain Smith gave the order to radio for help, first radio officer Jack Phillips sent "CQD" six times followed by the Titanic call letters, "MGY." Later, at Brides suggestion, Phillips interspersed his calls with "SOS." In SOS to the Rescue, 1935, author Baarslag notes, "Although adopted intentionally in 1908, it [SOS] had not completely displaced the older 'CQD' in the British operators' affections." (It is interesting to observe that Marconi was waiting in New York to return home to England on the Titanic.)

The first use of wireless in the rescue of an American ship was in 1905. Off Nantucket, the operator of Relief Ship No. 58, a light ship, sent "HELP" in International Morse and American Morse. (Trans Atlantic ships used International Morse and coastal ships used American Morse. The use of American Morse on seagoing vessels ceased in 1912 although it survived for many years on the Great Lakes.) A Naval Radio Station in Rhode Island answered the "HELP" call.

The first recorded use of "CQD" by an American ship was in 1908 by the steamer Santa Rosa off the coast of California. Commander Richard Johnstone records this in his memoir My San Francisco Story of the Waterfront and the Wireless, 1965. The first recorded American use of "SOS" was in August of 1909. Wireless operator T. D. Haubner of the SS Arapahoe radioed for help when his ship lost its screw new Diamond Shoals, sometimes called the "Graveyard of the Atlantic." The call was heard by the United Wireless station "HA" at Hatteras. A few months later, the SS Arapahoe received an "SOS" distress call from the SS Iroquois. Radio Officer Haubner therefore has the distinction of being involved in the first two incidents of the use of "SOS" in America, the first as the sender and the second as the receiver. The U.S. did not officially adopt "SOS" until 1912, being slow to adopt international wireless standards.

Besides "CQD" and "SOS," "XXX" was used as an urgent signal, being less urgent than "SOS." "TTT" was used as a safety signal to precede ice, storm and other navigational warnings including coastal artillery practice. "MEDICO" was used by ships without a doctor seeking medical advice from another ship or shore station.

Some European nations put into service automatic alarms. A relay was connected to the output of the receiver. Upon the reception of four or more dashes of exactly four seconds' duration, a device rang an alarm bell in the radio shack, the radio officer's quarters and on the ship's bridge. This system was employed as a substitute for a second operator. Because the system could miss a call under adverse condition or ring the bell in error, American radio authorities deemed it unreliable and not a substitute for an on duty operator.

In 1912, at the third radiotelegraph conference, it was internationally agreed to that ships would listen for distress signals on a wavelength of 600 meters. This is a frequency of about 500 kilohertz. International law required each ship to cease transmitting for three minutes at 15 and 45 minutes past the hour. During this interval they were required to listen for distress calls. At this conference, the recent Titanic disaster was fresh on the minds of the delegates, particularly the British. Consequently, many advances were made concerning the cooperative use of wireless at sea.

It is interesting that the use of "CQ" as a general call was displaced by "QST" in 1911. Radio amateurs, or hams as they are more commonly called, continue to use both. "CQ" is used as "calling any station" and "QST" is used as "calling all stations" Also note that the distress call by radio telephone is the two words "MAY DAY." On voice, the "XXX" equivalent is the word "PAN" and the "TTT" equivalent is "SECURITE." The calling frequency for voice was 2182 kilohertz.

Wireless and radio literature of the early and mid 20th century is rich in documenting the use of maritime distress signals. Only the surface of the subject is covered here. Yet, perhaps next time a reference to "SOS" is seen, there will be a little more appreciation of its lineage.

Letters, we get letters:

> **Chuck Grey:** *Maybe I can help you a little with pages 2 and 3 of Keyletter #5. Ten Tec was founded in 1968 by Al Kahn, K4FW. The first paddle/keyer were the KR5 and KR6 with original drawings dated 8/25/69. The President of Ten Tec is now Jack Burchfield K4JU who sent me a copy of Ten Tec's first key ad dated 7-70 from Ham Radio magazine. This ad included KR1 and KR2 (paddles sans keyer) and KR5, KR20 and KR40 keyers with paddles. It also shows the iambic paddles (KR1, 5, 20, 40) with white finger pieces. The KR50 came out*

later - first ad I have is 1977 QST. According to Ten Tec salesman Scott they stopped making keyers in 1990 when their brochure showed models 604 iambic and 605, 606 single lever. The 606 used a Curtis chip. They now only sell model 607 single plastic lever paddle, no keyers.

WB4FJJ of March Paddles sent me a copy of newspaper obit marked 12/2/78. "HILLS, Joseph A. , age 72 of Las Vegas, Nev., formerly of Dayton. He was self employed electronic inventor and manufacturer. He was a ham operator since 1922 with the call letters W8FYO, and a WWII veteran. Survived by sister Mrs. Dorothy Berm of Washington Twp. Several nieces and nephews. Funeral services 2 PM Wednesday at Schlientz and Moore Funeral Home, 1632 Wayne, Ave. Pastor Bette DeTurk officiating. Internment Memorial Park Cemetery. No visitation." It is interesting to note that Vibroplex started making the Brass Racer 17 years after Hill's patent (1965 to 1982). Maybe coincidence - or not?

Neal McEwen: *Was talking last nite to a real old time broadcast engineer (age 84). He told me that Eastham of Clapp-Eastham "Boston Key" fame left Clapp Eastham in 1914 to start General Radio. He said the GR made a spark key also and that the knurling was identical to the Boston Key. Any body ever seen a GR spark key?*

Dave Pennes: *What is the big deal about removing lacquer? I use the cheapest paint remover they sell at K-Mart. Drop the whole piece in [such as a screw, nut, or key base] or brush it on using an old toothbrush. Wait two minutes, remove, run it under water, polish with brass polish, and you are done. You can re-lacquer [polyurethane works great] as needed.*

Dave, I don't know what kind of lacquer you have run into, but I have had no luck with this type of treatment! OSHA has reduced the effectiveness of paint remover to the point that mothers milk would be more caustic. They have taken all of the fun out of killing yourself with chemicals.

Randy Cole: *Most of us have personally observed that the Brown Bros. were excellent machinists but lousy painters. I recently got a ST-A which confirmed this yet again. It must have had 20 chips in the paint, although they were all smaller than 3/16" or so.*

I touched the chips up with Testors "Model Master" enamel, Flat Black FS37038, and it really made them disappear. If you look closely you can see the small areas with no wrinkles, but from more than a few inches they're basically invisible. In addition, I think the touch up will help seal the edges of the chips and lessen further chipping. The Testors paint should be available in any good model/hobby shop and a lot of other places besides. I'm sure other types flat black enamel would also work well.

Bart Bartlett: *I ran across this [some ad copy Bart sent to me] last night while trying to find some correspondence which, as I recall, involved a complaint McElroy made to the ARRL about a QST article which I had authored in 1941. Not surprisingly these old ads were all that turned up. My recollection is that McElroy had developed a device that was connected to a receiver to sense fading and mechanically switched to the antenna having the best signal. The subject came up during a discussion of dual diversity systems during a RTTY QSO. I'm not sure if McElroy ever marketed a diversity adapter. Have you run across an item of this sort in any of his advertising 1939-1942?*

Merv Schweigert: *I just refinished a bug base in black wrinkle using a black wrinkle paint that is new to me. I sprayed a substantial coat on and waited 3 minutes. Sprayed another medium heavy coat and put it in the oven at about 125 degrees for a few hours. It is the best wrinkle that I have gotten from a spray can. Very small almost velvety wrinkle, great uniform finish with no edge buildup etc. It comes in various colors but have only tried black so far.*

Black Wrinkle Paint
Eastwood Co.
Auto Restoration Tools and Techniques
580 Lancaster Ave, Box 296
Malvern Pa. 19355 800-345-1178

Puck Motley: *I had a number of bugs which had rusty and/or corroded screws - the circuit closer screws, the dash lever spring carrying screws, the thumb piece retaining screws, etc. I found that a Dremel tool with small wire brush attachment operated at fairly low speed will clean those screws up so they look like new. Wear safety glasses or goggles to protect your eyes and do it in a well ventilated area (in not sure what that white powder oxidation on some of the screws was but I sure don't want to breathe it in). You can also polish up the springs that way. If you have a better way let me know.*

Paul Bock: *If anybody is interested in the Slo-Bugs, have them write to me for information. I now have models available for both round-shaft & flat-shaft bugs.*

Doug Palmer: *The only way to remove nameplate rivets is to drill them out. (The problem you may have if you try to pry the rivets out is that the rivets may be in tighter than you think, and you will screw up the nameplate, which bends very easily.)*

I'm assuming the rivet heads are round. First thing you'll need to do is grind down the heads a little to get a flat surface. Then use a small center punch to make a dent in the center of the head. Now use your smallest drill bit (which better be smaller than the rivet size), and drill down into the rivet. Then use a slightly larger drill size and repeat until you have drilled out the rivet from the hole. Last, go to Home Depot and buy new rivets.

As a sidebar, Speed-X bugs use rivets that have sharp spiral threads to allow the rivet to cut into the metal when they are pounded in. Makes removal VERY difficult. I recently replaced the nameplate on a Speed-X bug and it took a lot of force to pound out those rivets from the back. The problem I had was that the rivet holes were so small, I couldn't use a pin punch to do it. I had to use a cut-off wire-brad nail, which bends after about 2 hits. Took about a dozen nails to remove 4 rivets.

I just returned from a 2 week trip to Japan, visiting my wife's relatives. While there, I was able to acquire a bug made by a new company, The GHD Telegraph Key Company. It's an amazing piece of machinery. The GHD Telegraph Key Company makes a whole line of different keys, ranging from straight keys (both leaf-spring and sealed ball-bearing type) to bugs, keyer paddles and keyers.

As with everything in Japan, prices are rather expensive, so I just bought one item, the GD-131, which is their top-of-the-line bug. The GD-131 is a nice compact bug, measuring 6" by 2.75", so it's in between the Blue

Racer and Junior. However, it weighs 3.75 lb, so it won't walk around on you. Some of the interesting features of this bug:

1. The GD-131 is a Double-Lever design, just like the old Vibroplex model. The paddles seem to be a little closer together than on the Vibroplex's I've seen (unfortunately, I don't yet own a Vibroplex Double-Lever).

2. This particular bug uses photodiodes instead of mechanical contacts to make dots/dashes. To do this, the photodiodes are mounted on the base in a chrome-plated shell. The levers, instead of having round contacts, have flat metal strips which project outward from the lever. These metal strips move in and out of the photodiode assembly, breaking the light beam, causing the keying circuit to be broken.

3. The GD-131 model is considered a Multi-Key; that is, it can be used as a bug or a keyer paddle. This is accomplished as follows:

There are actually 3 photodiode assemblies mounted on the key base. One on right side of the bug, to produce dashes, and two on the left side; one for the bug dots and one for the keyer dots.

The dot lever then has TWO of the metal "contacting" strips coming out from the side. One strip is located on the pendulum, in the same spot that Vibroplex bugs have their contact spring. This contact strip is the one used for the bug dots. The second metal strip is located near the end of the dot lever, before the mainspring. This contact strip is used for the keyer dots.

When used as a bug, the photodiode for the keyer dots is disabled, so the metal strip for the keyer dots bottoms-out on the back of keyer-dot photodiode, providing the "stop" to allow the pendulum to bounce back and forth, hence causing the metal strip for the bug dots to move in and out of the photodiode.

When used as a keyer, there is a metal post at the far end of the bug, on the opposite side from the damper assembly. This metal post has a swinging catch, which is used to lock the pendulum in place. This of course prevents the metal strip for the bug dots from moving in and out. However, because of the flexibility of the mainspring, the metal strip for the keyer dots is still free to move in and out of the photodiode assembly. (More on the mainspring later). In addition, this metal catch is insulated from the base, and is wired to a small relay under the key, to turn off the bug-dot photodiode, and turn on the keyer-dot photodiode.

There are 3 separate wire assemblies projecting from underneath the bug. One for the bug, one for the keyer, and one for 12VDC to power up the key. There is also a small circuit board mounted underneath the bug for the supporting electronic components.

The wires kind of give the key a cluttered appearance; however, GHD now has a new improved version of the same key, with binding posts mounted on the base for the bug and keyer wires. The price of this new improved version is prohibitively high, though. When I first unpacked the bug, I was surprised to see how small the pendulum weight was. At first glance, it looked like the bug's minimum speed would probably be well above 20 WPM. However, this was not the case. The bug easily sent slower than 20 WPM, and this was using a SINGLE 8.5 gram weight! For comparison, the old small Vibroplex weight is 14 grams, and the new larg Vibroplex weight is 31 grams. The reason for this is that the GHD bug has a very thin mainspring, only 0.010", *compared to 0.015" - 0.018" for the Vibroplexes I measured. Also, the mainspring is longer than on the Vibroplexes. I measured the length of the mainspring at 0.580" on the GHD, compared to 0.380" for most Vibroplexes. (In addition, the length of the pendulum between the start of mainspring and damper is 3.85")*

The small weight and slow speed makes the GHD nice to use. I've noticed on most bugs with heavy weights that the increased weight wants to make the paddle move around between your fingers; however, because the GHD has such a small weight, it does not cause any backlash at the paddle end. The photodiodes allow the key to be used with a very light touch. When used in the keyer mode, the dot paddle is a little stiff, because you are having to work against the mainspring tension, but I think you can get used to it.

By the way, GHD also makes bugs with standard mechanical contacts, and single-lever bugs, for those that don't like using the double-lever design. Before you rush right out to buy one, there's a problem: They don't ship keys outside Japan, and they don't speak English, either.

I have considered trying to import some, by having GHD ship them to my wife's sister's house in Japan, then having her sister forward them here, but I don't know if there is enough interest over here to justify it. Plus, the bugs are pretty expensive. Their standard bug is around $200, and the GD-131 was even more than this.

Also, I rigged up my key so that I can also operate the bug through an electronic keyer for demo purposes at hamfests, etc. It's pretty neat to show how it converts between bug and keyer.

Pete Malvasi: *There are few bugs which generate as much excitement as the Codetrol among experienced collectors - they are rare as hell and are uniquely attractive. In fact, CQ Magazine's Radio Classic Calendar for 1995 features a mint one on its August page from Neal McEwen's collection.*

Not unlike many others before me, this collector knew that Bernie Breedlove was still around and kicking. In fact, he is licensed as N4BKR but don't let the newbe call mislead you - Bernie has been around for a long time and even was a business associate of the esteemed Ted McElroy back in the 40's. He was never a licensed ham until the 80's but has numerous ham and commercial radio experiences going back to the teens, not the least of which is his claim to have invented the electronic keyer in 1940.

I spoke with Bernie at length one day last year and it was a very enjoyable conversation. But, before going any further take note: he has no more Codetrols left - sold the last one over 10 years ago but continues to get hounded from collectors and is not too happy about that.

Bernard Breedlove is man of many varied interests and experiences. He started back in the teens operating commercial spark stations for various outfits including United Fruit Company (WBF New Orleans) and in the 20's working as a radio operator on board fishing vessels. He became a union leader for the Freight Radio Operators Association and later worked for United Airlines. That is about the time he met Ted McElroy who lived in his neighborhood. A bit later, in 1929, he became employed as a writer and editor for various trade newsletters and magazines - mostly in the maritime shipping industry.

At some point prior to the start of WW2 he had been contracted by the US Navy to produce and conduct training courses in aural and visual signaling systems. He was also called into service with the Navy as a civilian radio *communications specialist on missions involving the testing and delivery of new aircraft. Besides radio and shipping, he claims to be an expert on the North American Cod and has been published on that subject in the Saturday Evening Post.*

He refers to Ted McElroy with a great deal of affection but says "that was one crazy family - they were all a bid odd in some way like Ted ." Among several stories about Ted my favorite is the one about how McElroy dictated some of his correspondence to his secretary. Apparently he felt he did his best thinking "on the throne" so installed a little slide door window in his private office bathroom in the manner of a confessional from a Catholic church. There, while doing what comes naturally, he'd summon his secretary to a position on the other side of the little hatch and he'd open it up to regale her with various business correspondence. As was mentioned in French's bio of Ted, McElroy did not take kindly to consumer complaints, sending very nasty and sarcastic letters back to those few people who had some problem with one of the keys. Bernie said he spent many Saturday evenings "drinking beer and singing hymns" with Ted.

Back to Bernie. He said he always had an interest in doing things better - building the better mousetrap sort of thing. When Ted McElroy decided to get out of the bug business in the early 40's he bought all of the excess inventory and claims that the 240 odd Codetrols made used many of these pieces. He liked Vibroplex and McElroy bugs but wanted to make something different and "slick" and hence came out with the Codetrol. Unfortunately, he said, like Melehan, the timing was bad was bad for the bug market as people were starting to use electronic keyers (late 40's and 50's). He also mentioned there was not a lot margin on those keys.

Re his claim about inventing the keyer, he says his design predates the one shown in QST in the early 40's. He says his design was actually patented in February 1940 as number 2,302,290. I have not looked this up in the Patent Office files but it would be interesting to check it out. He says he has the original paperwork in storage which I hope he will release to me at some point.

In addition to the keyer which he never produced commercially, and the Codetrol, he says he made a fully automatic key like Melehan's and got it patented in 1950 but submitted it in 1946. He says this number is 2,526,001 but that he made less than 5. He said he thought he still had one of those which made my pulse jump to 220 but later called me back to say his advanced age had gotten the best of his memory later recalling nothing was left of any parts from his key business enterprise.

Bernard Breedlove seems to be so typical of many hams who have been around for a while. They all seem to have many other interests besides radio and are somewhat "free spirits". In my opinion he certainly achieved his goal of producing a different and "slick" key with the Codetrol and I can only hope one day to own one.

Well, that is it for Keyletter #21. I am always looking for new material, so please pass it along! I am generally lazy, so if you can send a disk or send via e-mail it saves a lot of typing time.

Please note that I have a new telephone area code. If yours has recently changed, please let me know. I plan to publish a list of subscribers in the next edition, so I want it to be up to date. If you do not wish to have your name listed, please let me know.

73 Lynn

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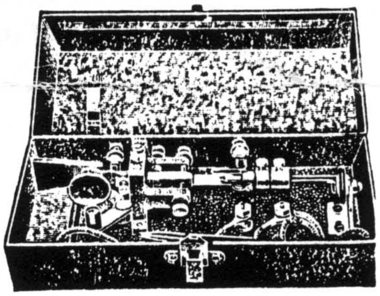

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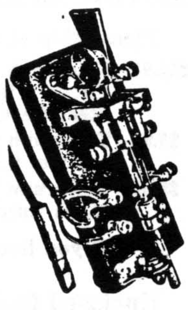

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